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EXPLORING PROBLEMS AND CHALLENGES FACED BY TEACHERS IN TEACHING MATHEMATICS AT BASIC LEVEL IN NEPAL

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Abstract

In recent years, the mathematics teaching has been a topic of increasing concern due to its foundational importance in shaping students' analytical and problem-solving skills. Despite its significance, teaching mathematics at the basic level is a challenge. Hence, this study is to identify the challenges by teacher when teaching mathematics at the basic level school. To cope with this challenges, three learning theories plays the crucial role where the children learn, process, and apply mathematics in real life situation. The analysis was based on six dimensions of the teachers' demographic factors, such as gender, age, qualification, experience, training, and school type. The study highlighted the numerous challenges faced by basic-level mathematics teachers, including content delivery, student engagement, resource use, classroom management, assessments, and professional development. The multiple regression value, R square and the adjusted R square value for those variables was found to be 0.469, 0.220, and 0.0792 respectively. Addressing these challenges requires holistic support, resource enhancement, capacity building, and pedagogical innovation with improving instructional practices, and informing policy for effective mathematics education.

Keywords: Mathematics Education, Demographic Factors, Curriculum Design, Instructional Methods, Challenges in Education.

INTRODUCTION

Mathematics is a fundamental knowledge that develops logical thinking for problem-solving, and increases the analytical skills in the students. It aims to provide students with the essential knowledge and competencies for their future academic and professional pursuits. However, teaching mathematics effectively at the basic level is not an easy task (Pokhrel, et al. 2024). It requires pedagogical skills with deep understanding of the subject matter. The effective teaching and learning of mathematics computation pose significant challenges in encompassing cognitive, affective, and metacognitive aspects (Kilpatrick et al., 2001). The prior knowledge, learning styles, motivation, anxiety, and cultural

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differences contribute to these difficulties (Poudel, 2020). Teachers has a crucial role in facilitating mathematics education but they encounter difficulties in curriculum design, instructional materials, assessment methods, and managing diverse classrooms (Lesh & Doerr, 2003). Historically it was found that the mathematics teaching started in Nepal at the basic level since the vedic period. (Poudel, et al. 2023). This study aims to investigate the challenges faced by the mathematics teachers at the basic level in Nepal. By exploring these challenges, the research seeks to revise pedagogical practices and contribute to the broader goals of improving the education quality (Boaler & Greeno 2000; Pokhrel et al, 2024). For the effective teaching and learning of any subjects, learning theories plays a crucial role. Behaviorism emphasizes on the observed behaviors and stimulus-response correlations (Braun & Clarke, 2006). Behaviorists assess arithmetic learning via standardized examinations and objective measurements (Bloom, 1956). Cognitive learning theory emphasizes on mental processes and structures (Lesh & Doerr, 2003). Cognitivists view learners as active knowledge builders and problem solvers (Shute et al. 2017). Constructivists recommend cooperative, project-based, situational, and numerous representations for teaching mathematics (Vygotsky, 1978; Cobb & Yackel, 1996; Lave & Wenger, 1991; NCTM, 2000).The constructivist considers learning as an active construction of meaning by the learner based on prior knowledge, experiences, and interactions with others (Cobb & Yackel, 1996). Computational thinking and problem solving technique are related to constructivism.

A mathematics education framework is the computational perspective, which views math learning as computational thinking and problem-solving in mathematical domains (Wing, 2006). Computational thinking emphasizes abstraction, algorithmic thinking, logic, and creativity in mathematical problem-solving, as well as the importance of giving students computational tools like programming languages, software, and hardware to create, explore, and communicate mathematical ideas (Papert, 1980). This study uses these frameworks to analyze basic math computation of challenges of the teachers of Nepal.

Furthermore, the Cognitive Load Theory (CLT) is a crucial theoretical framework that provides insights into the cognitive challenges encountered by both teachers and students during the teaching and learning process. (Asma & Dallel, 2021). It involves presentation of complex concepts and procedures. Additionally, the study reveals that teachers encounter challenges in maintaining students' attention and engagement during math lessons. Cognitive load theory suggests that it is caused by overwhelming tasks or distractions (Pokhrel & Poudel 2024). Hence, teachers face challenges in maintaining student's engagement and managing cognitive overload while teaching mathematics, requiring interactive and varied instructional strategies. Little (2009) discussed the issues and solutions for teaching mathematics to students with and without disabilities and highlighted the changing context and expectations of math standards and curriculum. Banerjee and Subramaniam (2012) found that the teachers gradually changed their teaching practices from procedural to conceptual, from arithmetic to algebraic, and from teacher-centred to student-centred and the student's understanding of algebraic concepts and skills as well as their attitudes towards algebra. Chinnappan and Forrester (2014) explored that the pre-service teachers had difficulties in generating procedural and

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conceptual knowledge of fractions due to their reliance on rote memorization, lack of understanding of fraction equivalence, and confusion between different representations. Machaba (2014) explained the challenges on teaching such as lack of resources, large class sizes, language barriers, curriculum changes, assessment pressures, low parental involvement, and low teacher confidence. Similarly Das and Das (2015) found that the students had low level of mathematical creativity. Panthi and Belbase (2017) believe that mathematics education in Nepal is facing several issues like curriculum mismatch, textbook quality, teacher competency, pedagogical approach, assessment system, student achievement, and socio-cultural factors.

Dahal and Bajracharya (2018) focus that the teachers' beliefs were mostly traditional and teacher-centred, and their practices were mainly lecture-based and procedural. The study also revealed some inconsistencies between the teachers' beliefs and practices due to various factors such as curriculum, assessment, students, and context. Panthi et al. (2021) detects eight themes of challenges: diverse students, working-class children, students' absenteeism, disengaging curriculum, students' different interests, non-participatory teaching, insufficient skills in using technology, and cultural differences. They also discussed the pedagogical and policy implications of their findings. The above literatures shows that a variety of challenges in teaching mathematics, including curriculum changes, teacher practices, resource limitations, and student engagement, and offer solutions such as shifting to student-centred approaches, fostering creativity, and addressing socio-cultural factors.

Objectives of the Study

The study is aimed to provide a comprehensive understanding of the problems faced by basic-level teachers in teaching mathematics. The objectives of the study is to identify the challenges faced by the teacher on teaching mathematics at the basic level school of Nepal.

Conceptual Framework of the study

The conceptual framework for the study is as follows;

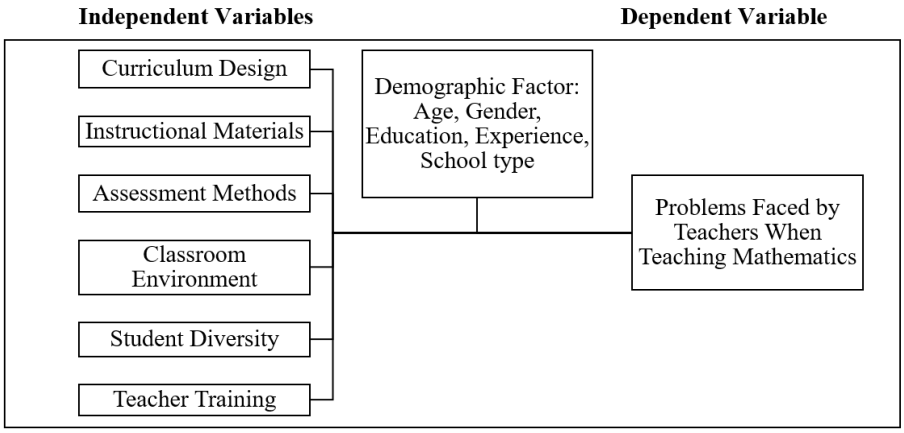

Figure 1: Conceptual framework of the study

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RESEARCH METHODOLOGY

The survey-method is adopted for the study. The study seeks the problem of basic level mathematics teacher by the pre structured survey questionnaire. The population consists of all the basic level mathematics teachers in Kaski district of Nepal.

The sample consists of 40 mathematics teachers from 20 basic level schools of the region. The schools were selected by using a random sampling technique. The teachers were selected using a random sampling technique, based on their availability and willingness to participate in the study. This study is done through Likert-scale questionnaires.

The questionnaire aimed to collect quantitative data on the teachers' perceptions of their difficulties and problems in teaching mathematics computation at the basic level. The researcher administered the questionnaire to all the 40 teachers and checked the accuracy and completeness of the data and after tabulation and coding, they were analyzed by using MS Excel based in research objective. The analysis was based on six dimensions of the teachers' demographic factors, such as gender, age, qualification, experience, training, and school type, which are given as follow;

Variables	Attributes	Frequency	Percentage
Age	Below 25 years	10	25.00
	25-34 years	12	30.00
	35-44 years	8	20.00
	45-54 years	6	15.00
	Above 54 years	4	10.00
	Total	40	100.00
Gender	Male	23	57.50
	Female	17	42.50
	Other	0	-
	Total	40	100.00
Highest level of education	Plus, Two	4	10.00
	Bachelor's degree	19	47.50
	Master's degree	15	37.50
	Doctoral degree	0	-
	Other (please specify)	2	5.00
	Total	40	100.00
Years of experience teaching mathematics at the basic level	Less than 1 year	6	15.00
	1-5 years	12	30.00
	6-10 years	10	25.00
	11-15 years	6	15.00
	More than 15 years	6	15.00
	Total	40	100.00
Type of school	Private school	20	50.00
	Public school	20	50.00
	Total	40	100.00

Figure 2: Teachers' demographic factors

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RESULTS AND DISCUSSIONS

a) Analysis of Teachers Demographic Factor

The result of the analysis based on six dimensions; gender, age, qualification, experience, training, and school type, is given below (Table 3);

Table 3: Analysis of Teachers Demographic Factor

Statements	Min	Max	Mean	St. Dev	CV
My age affects my ability to teach mathematics effectively at the basic level school.	1	5	2.83	1.07	0.379
My gender influences my teaching style and approach in mathematics at the basic level school.	1	5	2.90	0.83	0.286
My education level determines my competence and confidence in teaching mathematics.	1	5	4.50	0.55	0.122
My teaching experience enhances my skills and knowledge in teaching mathematics.	1	5	4.58	0.49	0.108
My school type influences the availability and quality of resources and support for teaching mathematics.	1	5	3.80	0.84	0.222

The six dimensions, each had a sentence which defined its influences. They are described in the following paragraphs**.** The statement "My age affects my ability to teach mathematics effectively at the basic level school" received a mean score of 2.83. This suggests a moderate perception among teachers regarding the impact of age on their effectiveness in teaching mathematics.

The statement "My gender influences my teaching style and approach in mathematics at the basic level school" garnered a mean score of 2.90, indicating a moderate influence perceived by teachers regarding their gender's impact on teaching style and approach in mathematics. The statement on education level and its determination in competence in teaching mathematics received a higher mean score of 4.50. This indicates that the teachers largely believe in the influence of their education level on their competence and confidence in teaching mathematics.

Likewise the statement on teaching experience enhancing skills and knowledge gave a mean score of 4.58 indicating a widespread belief among teachers that teaching experience significantly contributes to their skills and knowledge in teaching mathematics. The statement on school type and its influences on the availability and quality of resources and support received a mean score of 3.80.

This indicates a moderate perception among teachers regarding the influence of school type on resource availability and quality for teaching mathematics. Hence, teachers perceive education level and teaching experience as the most significant factors influencing their effectiveness in teaching mathematics, with gender, age, and school type having moderate impacts

Curriculum Design

Under curriculum design, we discuss about mathematics curriculum and its association with the learning objectives, standards, and outcomes. It studies about the curriculum

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meeting the needs and interests of the students, and its integration with other subjects. The questionnaire on curriculum revealed the following facts given in the table 4. Almost 77% (31 persons) responded that the present curriculum is somehow appropriate.

Table 4: Feedback in curriculum structure

Mathematics Curriculum Design	Frequency	Percentage
Very appropriate	2	5.00
Somewhat appropriate	31	77.50
Neither appropriate nor inappropriate	6	15.00
Somewhat inappropriate	1	2.50
Very inappropriate	0	-
Total	40	100.00

b) Feedback in curriculum

Teachers viewed that the basic level mathematics curriculum as clear, relevant, and appropriate, with mean scores of 3.58 for both clarity/relevance of objectives and appropriateness of content, and a moderate level of agreement (standard deviation of 0.63).

The curriculum's flexibility and creativity received a mean score of 3.45, indicating moderate positivity. However, alignment with national and international benchmarks scored lower at 2.98, reflected some dissatisfaction. The following table (Table 5) describes the difficulties faced by the teacher on curriculum due to curriculum design in Basic Level School.

Table 5: Feedback in curriculum

Statements	Min	Max	Mean	St. Dev	CV
The mathematics curriculum objectives and standards are clear and relevant for the basic level school.	1	5	3.58	0.63	0.176
The mathematics curriculum content and topics are appropriate and adequate for the basic level school.	1	5	3.58	0.63	0.176
The mathematics curriculum design allows flexibility and creativity for teaching mathematics.	1	5	3.45	0.63	0.183
The mathematics curriculum design is aligned with the national and international benchmarks and expectations for the basic level school.	1	5	2.98	0.61	0.206
The mathematics curriculum design is responsive to the needs and interests of the students	1	5	3.43	0.80	0.234

c) Instructional Materials

It refers to the resources and tools that the teachers use to facilitate the teaching and learning of mathematics, such as textbooks, worksheets, manipulatives, software, and online platforms. From the table 6, it is seen that 90% of teachers mostly use instructional materials in their mathematics teaching, indicating high reliance on the resources. Very few or none teachers never used instructional materials. Table 6 precisely describes the use of instructional materials in the basic school level.

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Table 6: Use of Instructional Materials at Basic Level School

Use Instructional Materials	Frequency	Percentage
Always	18	45.00
Often	18	45.00
Sometimes	4	10.00
Rarely	0	-
Never	0	-
Total	40	100.00

d) Availability of Instructional materials

The availability and also the difficulties faced by teachers on instructional materials at the basic level school is studied by table 7

Table 7: Availability of instructional materials

Statements	Min	Max	Mean	St. Dev	CV
I have access to sufficient and suitable instructional materials for teaching mathematics at the basic level school.	1	5	3.55	0.97	0.274
I use a variety of instructional materials (such as textbooks, worksheets, manipulatives, etc.) to enhance mathematics learning.	1	5	3.83	0.54	0.142
I adapt and modify the instructional materials to suit the mathematics curriculum objectives and standards for the basic level school.	1	5	4.20	0.68	0.161
I evaluate and select the instructional materials based on their quality, relevance, and effectiveness for teaching mathematics	1	5	4.35	0.91	0.209
I integrate technology into the instructional materials to facilitate mathematics learning.	1	5	3.13	1.08	0.345

From table 7 it is seen that teachers use sufficient and suitable instructional materials for teaching mathematics at the basic level, with a mean score of 3.55 indicating moderate positivity and some variability in opinions. They frequently use diverse instructional materials (mean score of 3.83) and feel confident in adapting them to curriculum objectives (mean score of 4.20). Teachers also strongly believe in their ability to evaluate and select quality materials (mean score of 4.35). However, there is moderate positivity and higher variability in integrating technology into instructional materials (mean score of 3.13), highlighting a potential area for improvement. Overall, these insights reflect teachers' effective use of materials and the challenges they face in incorporating technology.

Assessment Methods

It refers to the modes that the teachers measure and evaluate the students' learning objectives in mathematics through tests, quizzes, homework, projects, etc. Table 8 shows the type and frequency of the different assessment method, which shows that most of the evaluations are through written tests, oral tests and performance tasks.

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Table 8: Measure of assessement methods

Assess Your Students' Learning Outcomes in Mathematics	Frequency	Percentage
Written tests only	1	2.50
Written tests and oral tests	25	62.50
Written tests, oral tests, and performance tasks	14	35.00
Written tests, oral tests, performance tasks, and portfolios	0	-
Other (please specify)	0	-
Total	40	100.00

e) Use of Assessment and evaluation

After the assessment evaluation, the output is interpreted in different ways. The different ways that the sampled teachers used is summarized by the table 9. The use of assessment to measure the students' learning outcomes in mathematics" had a mean score of 3.98, indicating that teachers widely utilize diverse assessment methods with strong consensus. (Standard deviation of 0.42). Teachers also believe their assessment methods align well with curriculum objectives, reflected by a mean score of 4.00, though with moderate variability (standard deviation of 0.74). The use of assessment results to monitor student progress and for self-reflection on teaching effectiveness had a high mean score. It showed that teachers used diverse assessment methods to align with curriculum objectives.

Table 9: Use of Assessment and evaluation

Statements	Min	Max	Mean	St. Dev	CV
I use written tests, oral tests, performance tasks, portfolios, etc. To measure my students' learning outcomes in mathematics at the basic level school.	1	5	3.98	0.42	0.105
I align my assessment methods with the mathematics curriculum objectives and standards for the basic level school.	1	5	4.00	0.74	0.185
I provide clear and consistent criteria and rubrics for grading and scoring in my students' mathematics work.	1	5	3.40	0.73	0.216
I use the assessment results to monitor and improve my students' mathematics learning progress at the basic level school.	1	5	4.35	0.94	0.215
I use the assessment results to reflect and evaluate my own mathematics teaching effectiveness.	1	5	4.50	0.92	0.205

f) Classroom Environment

The classroom environment plays a key role in the teaching and learning process. For this 5 norms were taken. Using the feedback taken from the teachers the classroom teachers viewed their classrooms are reasonably well-equipped and organized for teaching mathematics, with mean scores of 3.70 for equipment and 3.68 for space and seating arrangements. The room facility obtained the mean score of 3.80. However, there are challenges in creating a fully conducive atmosphere had mean score of 3.30 and

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concerns about noise and distractions was with mean score of 2.88. The details are shown in the table 10 given below.

Table 10: Classroom Environment

Statements	Min	Max	Mean	St. Dev	CV
My classroom is well-equipped and organized for teaching mathematics at the basic level school.	1	5	3.70	0.60	0.162
My classroom has enough space and seating arrangements for conducting mathematics activities at the basic level school.	1	5	3.68	0.88	0.239
My classroom has a conducive atmosphere and culture for mathematics learning.	1	5	3.30	0.75	0.227
My classroom has adequate lighting, ventilation, and temperature for teaching mathematics.	1	5	3.80	0.71	0.188
My classroom has minimal noise and distraction that interfere with mathematics teaching and learning.	1	5	2.88	0.84	0.293

g) Diversification in interests and skills

Normally the teaching learning condition would be favorable if the class composition is homogeneous. The diversity in interest and skill affects the learning output in the students. In our study, most of the learning groups were highly diversed (nearly 23 out of 40). It was very hard to find the homogeneous class in terms of skills and interests. The details is shown in table 11.

Table 11: Diversification in interests and skills

Diversification of the students in terms of their abilities, interests, backgrounds, and learning styles when learning mathematics	Frequency	Percentage
Very diverse	23	57.50
Somewhat diverse	11	27.50
Neither diverse nor homogeneous	5	12.50
Somewhat homogeneous	1	2.50
Very homogeneous	0	-
Total	40	100.00

h) Awareness of the teachers on student’s diversity.

If the teacher are aware of their student’s interest and skills, then the teaching process will be easier. In our study, (Table 12) teachers were awre of their students' diverse abilities, interests, and learning styles in mathematics, (mean score of 4.05 and low variability (0.31)).

However, they face challenges on differentiation (mean score of 3.35). Results revealed that teachers highly value on diversity (mean score of 4.30) and strongly encourage collaboration among diverse students (mean score of 4.83), reflecting a strong commitment to fostering inclusive learning environments.

Addressing these challenges educators could enhance their abilities to create inclusive mathematics learning environments at the basic level school.

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Table 12: Teacher's awareness in student's diversity

Statements	Min	Max	Mean	St. Dev	CV
I am aware of the diverse abilities, interests, backgrounds, and learning styles of my students in mathematics at the basic level school.	1	5	4.05	0.31	0.077
I differentiate and individualize my mathematics instruction to cater to the diverse needs and abilities of my students at the basic level school.	1	5	3.35	0.61	0.183
I use culturally relevant and inclusive examples and contexts in teaching mathematics at the basic level school.	1	5	2.93	0.85	0.290
I respect and value the diversity of my students in learning mathematics at the basic level school.	1	5	4.30	0.68	0.158
I encourage and facilitate collaboration and interaction among my students with diverse backgrounds in mathematics classroom	1	5	4.83	0.44	0.091

i) Professional development of the teachers

Professional development refers to the training in teaching skills, pedagogy, and knowledge enhancement. Professional development for the teacher is most important because it increase the skill and talent in the students which in turn relays to the student. In our study teachers feel that their training is inadequate (mean score of 3.30, significant variability 1.19). Teachers with moderate parcipation in the training had mean score of 3.35 with varying engagement levels. Despite these outcomes, teachers believe they have learned and applied innovative methods (mean score of 4.28) and the training they received significantly improved their content knowledge and pedagogical skills for additional details refer to table 13.

Table 13: Teacher's professional development

Statements	Min	Max	Mean	St. Dev	CV
I have received adequate relevant training for teaching mathematics at the basic level school.	1	5	3.30	1.19	0.360
I have participated in regular and continuous professional development programs for mathematics teaching at the basic level school.	1	5	3.35	0.76	0.227
I have learned and applied new and innovative methods and strategies for teaching mathematics at the basic level school.	1	5	4.28	0.67	0.157
I have improved my mathematical content knowledge and pedagogical skills through teacher training.	1	5	4.45	0.71	0.159
I have benefited from the feedback and support from my mentors, peers, and supervisors in mathematics teaching at the basic level school.	1	5	3.80	0.84	0.222

j) Challenges on in teaching computation in mathematics classroom in basic school

There are challenges in teaching the computational part in mathematics. The challenges in teaching computational part in mathematics are given by following constructs. (Refer table 14). Teachers face several challenges in teaching mathematics at the basic level,

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(mean score of 3.98), finding appropriate instructional materials had the mean score of 3.80 and developing effective lesson plans (mean score of 3.28). Furthermore issues are reflected by means of the table given below.

Table 14: Challenges in teaching mathematics computation

Statements	Min	Max	Mean	St. Dev	CV
I face problems in teaching mathematics effectively.	1	5	4.85	0.36	0.074
I face problems in motivating and engaging my students in mathematics at the basic level school.	1	5	4.10	0.44	0.106
I face problems in managing the behaviour and discipline of students when teaching mathematics.	1	5	3.98	0.61	0.154
I face problems in addressing the diverse needs and abilities of my students in mathematics.	1	5	3.95	0.80	0.204
I face problems in finding and using appropriate instructional materials for teaching mathematics.	1	5	3.80	0.90	0.237
I face problems in designing and implementing effective mathematics lesson plans.	1	5	3.28	1.05	0.320
I face problems in assessing my students' mathematical knowledge and skills.	1	5	3.73	1.07	0.288
I face problems in providing feedback and remediation to my students in mathematics.	1	5	2.70	1.31	0.484
I face problems in accessing and utilizing professional development opportunities and resources for mathematics teaching	1	5	3.68	0.79	0.214

k) Relationship Between different variables.

There are many challenges for the mathematics teacher to in the basic school of Nepal. In this section we will observe the relationship between the challenges faced by the teachers as curriculum design and instructional materials to classroom dynamics and student diversity. These concerns impact teaching and learning for both teachers and students. The relationship is shown in the table given below;

Table 15; Relationship between different variables

Variables	DF	CD	IM	AM	CE	SD	PF	TT
DF	1							
CD	(0.014)	1						
IM	0.050	0.556	1					
AM	0.182	0.284	0.674	1				
CE	(0.226)	0.526	0.596	0.430	1			
SD	0.413	(0.164)	0.179	0.446	0.194	1		
PF	0.408	0.022	0.161	0.185	0.030	0.423	1	
TT	0.314	(0.059)	(0.206)	0.162	(0.235)	0.300	0.104	1

Table 15 analyses the relationship between different variables on the problem faced by a teacher. The analysis of Demographic Factors (DF) reveals various degrees of correlation with other factors influencing teaching difficulties in mathematics. DF shows a very weak positive relationship with Curriculum Design (CD) (r = 0.014) and instructional materials (IM) (r = 0.050), indicating minimal impact on these aspects of teaching. Similarly, the

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weak positive relationship with Assessment Methods (AM) (r = 0.182) and Teacher Training (TT) (r = 0.314) suggests a slight influence of demographic factors on these areas. A weak negative relationship exists between DF and Classroom Environment (CE) (r = -0.226), indicating that certain demographic factors have a slight adverse effect on classroom dynamics.

Moving on to specific factors, CD exhibits moderate positive correlations with IM (r = 0.556) and AM (r = 0.284), indicating a well-designed curriculum tends to align closely with appropriate instructional materials and assessment strategies. However, the correlation between CD and problems faced by teachers (PF) is very weak (r = 0.022), implying that curriculum design may not be a significant contributor to the challenges experienced by the teachers. IM demonstrate a strong positive relationship with AM (r = 0.674), suggesting a close association between the availability and quality of instructional materials and the methods used for assessing student learning. However, the correlation between IM and problems faced by teachers (PF) is relatively weak (r = 0.161), indicating that instructional materials may play a role in teaching difficulties. Overall, these correlations provide valuable insights into the complex interplay of various factors influencing the difficulties faced by teachers when teaching mathematics.

1) Regression Analysis of the study

Regression analysis is used in educational research to examine the association between teachers' math problems and their instructional challenges. Teachers face obstacles such as limited resources, insufficient training, and diverse student requirements that affect their math teaching. These issues impede instruction and student learning.

Table 16: Regression Analysis

Variables	Coefficients	Standard Error	t Stat	P-value
Intercept	2.07	0.76	2.75	0.01
CD	0.11	0.16	0.69	0.05
IM	0.10	0.15	0.66	0.05
AM	(0.07)	0.17	(0.45)	0.07
CE	(0.14)	0.14	(1.02)	0.03
SD	0.47	0.18	2.64	0.01
TT	(0.02)	0.11	(0.21)	0.08

** Multiple R 0.469972433*

** R Square 0.220874087*

** Adjusted R Square 0.079214831*

The analysis (from table 16) of the difficulties faced by teachers encountered in teaching mathematics reveals several key points. The significant baseline level of challenges (intercept coefficient of 2.07) indicates inherent complexities in teaching mathematics. While curriculum design (CD), instructional materials (IM), and teacher training (TT) do not significantly impact these challenges, the classroom environment (CE) and student diversity (SD). The classroom environment significantly affects the problems faced by

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teachers (coefficient of 0.14, p-value of 0.03), and student diversity has a substantial impact (coefficient of 0.47, p-value of 0.01), highlighting the importance of addressing these factors to improve teaching outcomes.

CONCLUSION

The analysis of challenges faced by basic-level teachers in teaching mathematics at the school revealed multifaceted difficulties experienced by mathematics teaches in various directions. Teachers encountered significant challenges in delivering mathematics content effectively, with a remarkably mean score of 4.85. This highlights the critical need for interventions and support mechanisms to enhance pedagogical strategies, ensuring more effective content delivery. Additionally, challenges in motivating and engaging students in mathematics (mean score: 4.10), managing classroom behavior and discipline (mean score: 3.98), addressing diverse student needs (mean score: 3.95), and finding appropriate instructional materials (mean score: 3.80) were identified. These challenges emphasize the necessity of a comprehensive approach, incorporating strategies for increased student engagement, improved classroom management, better adaptation to diverse learning needs, and enhanced access to suitable instructional resources. Also, teachers are facing problems in lesson planning (mean score: 3.28), testing students' knowledge (mean score: 3.73), giving useful feedback and help (mean score: 2.70), and getting to professional development opportunities (mean score: 3.68) this shows importance of teachers support, resources, and ongoing professional development to overcome these problems.

The study uncovered several specific challenges faced by teachers during teaching mathematics at the elementary level. The teachers expressed difficulties in delivering mathematical content effectively, motivating students, managing diverse classroom behaviour, and catering to varying student needs. Moreover, challenges related to instructional materials, lesson planning, assessment methods, feedback provision, and accessing professional development opportunities were identified. These challenges signify the need for interventions and resource enhancement, to address the diverse array of difficulties faced by teachers in their mathematics instructions. Notably, the varied nature of these challenges underscores the necessity for a multifaceted approach to support teachers comprehensively in overcoming these obstacles and fostering a more conducive environment for effective mathematics education at the elementary level.

The findings revealed a complex landscape of difficulties encompassing pedagogical, instructional, classroom management, and professional development. Teachers encountered substantial hurdles in content delivery, student engagement, resource utilization, classroom management, assessment practices, and accessing professional development opportunities. To address these multifaceted challenges, it requires a holistic approach that integrates targeted support mechanisms, resource enhancement, capacity building, and suitable pedagogical practice. The insights of this study serves as a foundational platform for the development and implementation of interventions tailored to the specific needs of basic-level mathematics educators, aiming to enhance teaching practices and ultimately improve student learning outcomes in mathematics within the

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district. These implications aim to guide future research endeavors, assist teachers in improving their instructional practices, aid basic level schools in providing a conducive learning environment, support education administrators in resource allocation and planning, and prompt policy makers to enact measures fostering inclusive and effective mathematics education.

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